

AMENDMENTS TO THE CLAIMS

1 – 21 Cancelled.

22. (new) An ejector-type refrigerant cycle device, comprising:
- a compressor that sucks and compresses refrigerant;
 - a radiator that radiates heat from the high-pressure refrigerant discharged from the compressor;
 - an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator, and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;
 - a first evaporator having a refrigerant outflow side connected to a suction side of the compressor;
 - a first branch passage that branches a flow of refrigerant upstream of the ejector and guides the branched flow of refrigerant to the refrigerant suction port;
 - a first throttling means that is disposed in the first branch passage and depressurizes and expands refrigerant; and
 - a second evaporator that is disposed in the first branch passage downstream of the first throttling means, wherein:
 - a refrigerant evaporating pressure of the second evaporator is lower than a refrigerant evaporating pressure of the first evaporator; and
 - the first throttling means is provided with a fully opening function, and fully opens the first branch passage when the second evaporator is defrosted.

23. (new) An ejector-type refrigerant cycle device, comprising:

- a compressor that sucks and compresses refrigerant;
- a radiator that radiates heat from high-pressure refrigerant discharged from the compressor;
- an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator, and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;
- a first evaporator having a refrigerant outflow side connected to a suction side of the compressor;
- a first branch passage that branches a flow of refrigerant upstream of the ejector and guides the branched flow of refrigerant to the refrigerant suction port;
- a first throttling means that is disposed in the first branch passage and depressurizes and expands refrigerant;
- a second evaporator that is disposed in the first branch passage downstream of the first throttling means;
- a bypass passage that guides the high-pressure refrigerant discharged from the compressor directly into the second evaporator; and
- a shut mechanism that is provided in the bypass passage, wherein:
 - a refrigerant evaporating pressure of the second evaporator is lower than a refrigerant evaporating pressure of the first evaporator, and
 - the shut mechanism is constructed to be normally closed, and to open the bypass passage when the second evaporator is defrosted.

24. (new) An ejector-type refrigerant cycle device, comprising:

- a compressor that sucks and compresses refrigerant;
- a radiator that radiates heat from high-pressure refrigerant discharged from the compressor;
- an ejector having a nozzle portion that depressurizes and expands refrigerant on the downstream side of the radiator and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;
- a first evaporator having a refrigerant outflow side connected to a suction side of the compressor;
- a first branch passage that branches a flow of refrigerant upstream of the ejector and guides the branched flow of refrigerant to the refrigerant suction port;
- a first throttling means that is disposed in the first branch passage and depressurizes and expands refrigerant;
- a second evaporator that is disposed in the first branch passage downstream of the first throttling means;
- a bypass passage that bypasses the first throttling means; and
- a shut mechanism that is provided in the bypass passage, wherein:
 - a refrigerant evaporating pressure of the second evaporator is lower than a refrigerant evaporating pressure of the first evaporator; and
 - the shut mechanism is constructed to be normally closed, and to open the bypass passage when the second evaporator is defrosted.

25. (new) The ejector-type refrigerant cycle device according to Claim 22, further comprising:

a third evaporator that evaporates refrigerant to have a cooling capability in a temperature zone that is the same as that of the first evaporator.

26. (new) The ejector-type refrigerant cycle device according to Claim 25, further comprising:

a second branch passage that branches the flow of refrigerant at a portion of the first branch passage positioned upstream of the first throttling means and joins the branched flow of refrigerant to the flow of refrigerant between the refrigerant outflow side of the first evaporator and the suction side of the compressor; and

a second throttling means that is disposed in the second branch passage and depressurizes and expands refrigerant,

wherein the third evaporator is disposed in the second branch passage downstream of the second throttling means.

27 (new) The ejector-type refrigerant cycle device according to Claim 22, wherein the first evaporator is connected to a refrigerant outflow side of the ejector.

28 (new) The ejector-type refrigerant cycle device according to Claim 23, wherein the first evaporator is connected to a refrigerant outflow side of the ejector.

29 (new) The ejector-type refrigerant cycle device according to Claim 24,
wherein the first evaporator is connected to a refrigerant outflow side of the
ejector.

30. (new) The ejector-type refrigerant cycle device according to Claim 22,
further comprising

a third throttling means that is provided between a refrigerant outflow side of the
radiator and a refrigerant inflow side of the first evaporator,
wherein the ejector is provided in parallel with the third throttling means.

31. (new) The ejector-type refrigerant cycle device according to Claim 23,
further comprising

a third throttling means that is provided between a refrigerant outflow side of the
radiator and a refrigerant inflow side of the first evaporator,

wherein the ejector is provided in parallel with the third throttling means.

32. (new) The ejector-type refrigerant cycle device according to Claim 24,
further comprising

a third throttling means that is provided between a refrigerant outflow side of the
radiator and a refrigerant inflow side of the first evaporator,

wherein the ejector is provided in parallel with the third throttling means.

33. (new) The ejector-type refrigerant cycle device according to Claim 22,
further comprising:

a shut mechanism that shuts a passage area located upstream of the ejector when the second evaporator is defrosted.

34. (new) The ejector-type refrigerant cycle device according to Claim 23, further comprising:

a shut mechanism that shuts a passage area located upstream of the ejector when the second evaporator is defrosted.

35. (new) The ejector-type refrigerant cycle device according to Claim 24, further comprising:

a shut mechanism that shuts a passage area located upstream of the ejector when the second evaporator is defrosted.

36. (new) The ejector-type refrigerant cycle device according to Claim 23, further comprising:

a shut mechanism that shuts a passage area located upstream of the radiator when the second evaporator is defrosted.

37. (new) An ejector-type refrigerant cycle device comprising:

a compressor that sucks and compresses refrigerant;

a radiator that radiates heat from a high-pressure refrigerant discharged from the compressor;

an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator, and a refrigerant suction port through which

refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;

a first evaporator that evaporates the refrigerant flowing out of the ejector;

a vapor-liquid separator that separates the refrigerant flowing out of the first evaporator into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a suction side of the compressor;

a branch passage that connects a liquid phase refrigerant outlet of the vapor-liquid separator to the refrigerant suction port;

a throttling means that is disposed in the branch passage, and depressurizes and expands the liquid phase refrigerant flowing out of the vapor-liquid separator;

a second evaporator that is disposed in the branch passage downstream of the throttling means;

a bypass passage that guides the high-pressure refrigerant discharged from the compressor directly into the second evaporator; and

a shut mechanism that is provided in the bypass passage, wherein:

a refrigerant evaporating pressure of the second evaporator is lower than a refrigerant evaporating pressure of the first evaporator; and

the shut mechanism is constructed to be normally closed, and to open the bypass passage when the second evaporator is defrosted.

38. (new) An ejector-type refrigerant cycle device comprising:

a compressor that sucks and compresses refrigerant;

a radiator that radiates heat from high-pressure refrigerant discharged from the compressor;

an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator, and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;

a first evaporator having a refrigerant outflow side connected to a suction side of the compressor;

a second evaporator having a refrigerant outflow side connected to the refrigerant suction port;

a first throttling mechanism that is disposed on a refrigerant outflow side of the first evaporator;

a second throttling mechanism that is provided on a refrigerant inflow side of the second evaporator; and

a controlling means that controls an opening of the first throttling mechanism and an opening of the second throttling mechanism, and switches an operation mode between a normal operation mode in which low-pressure refrigerant is evaporated at the first evaporator and the second evaporator and a defrosting operation mode in which high-pressure, high-temperature refrigerant on a discharge side of the compressor is introduced into both the second evaporator and the first evaporator to defrost both the evaporators.

39. (new) The ejector-type refrigerant cycle device according to Claim 38, characterized in that:

in the defrosting operation mode, the first throttling mechanism is brought into a state of a predetermined throttle opening and the second throttling mechanism is

brought into a fully open state.

40. (new) An ejector-type refrigerant cycle device comprising:
 - a compressor that sucks and compresses refrigerant;
 - a radiator that radiates heat from the high-pressure refrigerant discharged from the compressor;
 - an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator, and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;
 - a first evaporator having a refrigerant outflow side connected to the suction side of the compressor;
 - a second evaporator having a refrigerant outflow side connected to the refrigerant suction port;
 - a first throttling mechanism that is provided on a refrigerant inflow side of the second evaporator;
 - a second throttling mechanism that is provided on a refrigerant outflow side of the second evaporator; and
 - a controlling means that controls an opening of the first throttling mechanism and an opening of the second throttling mechanism, and switches an operation mode between a normal operation mode in which low-pressure refrigerant is evaporated at the first evaporator and the second evaporator and a defrosting and cooling operation mode in which the second evaporator is defrosted and at the same time the first evaporator has a cooling capability, wherein:

in the defrosting and cooling operation mode, high-pressure, high-temperature refrigerant on a discharge side of the compressor is introduced into the second evaporator to defrost the second evaporator, and further high-pressure refrigerant that passed through the second evaporator is depressurized by the second throttling mechanism and low-pressure refrigerant depressurized is introduced into the first evaporator to cause the first evaporator to carry out a cooling function.

41. (new) The ejector-type refrigerant cycle device according to Claim 40, characterized in that:

in the defrosting and cooling operation mode, the first throttling mechanism is brought into a fully open state and the second throttling mechanism is brought into a state of a predetermined throttle opening.

42. (new) An ejector-type refrigerant cycle device comprising:
a compressor that sucks and compresses refrigerant;
a radiator the radiates heat from high-pressure refrigerant discharged from the compressor;

an ejector having a nozzle portion that depressurizes and expands refrigerant on a downstream side of the radiator and a refrigerant suction port through which refrigerant is sucked by the flow of refrigerant jetted at high speed from the nozzle portion;

a first evaporator having a refrigerant outflow side connected to the suction side of the compressor;

a second evaporator having a refrigerant outflow side connected to the

refrigerant suction port;

a throttling mechanism that is provided on a refrigerant inflow side of the second evaporator; and

a controlling means that switches an operation mode between a normal operation mode in which a state in which heat is radiated from refrigerant in the radiator is set and low-pressure refrigerant is evaporated in the first evaporator and the second evaporator, and a defrosting operation mode in which a state in which heat is not radiated from refrigerant at the radiator is set and both the first evaporator and the second evaporator are defrosted, wherein

in the defrosting operation mode, refrigerant on a discharge side of the compressor is let to flow into the throttling mechanism in a high-pressure, high-temperature state and depressurized, and a low-pressure, high-temperature vapor phase refrigerant that passed through the throttling mechanism is guided into both the first evaporator and the second evaporator.

43. (new) The ejector-type refrigerant cycle device according to Claim 42, wherein an opening of the throttling mechanism is made larger in the defrosting operation mode than in the normal operation mode.

44. (new) The ejector-type refrigerant cycle device according to Claim 38, further comprising:

an air blowing means provided to blow cooling air to the radiator, wherein

in the defrosting operation mode, the air blowing means is brought into a stopped state.

45. (new) The ejector-type refrigerant cycle device according to Claim 42, further comprising:

an air blowing means provided to blow cooling air to the radiator, wherein in the defrosting operation mode, the air blowing means is brought into a stopped state.

46. (new) The ejector-type refrigerant cycle device according to Claim 42, further comprising:

a radiator bypass passage that bypasses a refrigerant passage of the radiator; and

a bypassing shut mechanism that is provided in the radiator bypass passage, wherein

in the defrosting operation mode, the bypassing shut mechanism is brought into an open state, and high-pressure, high-temperature refrigerant on a discharge side of the compressor is introduced into the throttling mechanism through the radiator bypass passage.

47. (new) The ejector-type refrigerant cycle device according to Claim 46, further comprising:

a radiator shut mechanism provided at the refrigerant outlet portion of the radiator in parallel with the bypassing shut mechanism; and

an air blowing means provided to blow cooling air to the radiator, wherein

in the defrosting operation mode, the bypassing shut mechanism is brought into an open state and the radiator shut mechanism is brought into a closed state, and the air blowing means is brought into an operating state.

48. (new) The ejector-type refrigerant cycle device according to Claim 38, further comprising

an ejector shut mechanism that is provided in a passage located upstream of the ejector, wherein

in the defrosting operation mode and in the defrosting and cooling operation mode, the passage located upstream of the ejector is brought into a closed state by the ejector shut mechanism.

49. (new) The ejector-type refrigerant cycle device according to Claim 42, further comprising

an ejector shut mechanism that is provided in a passage located upstream of the ejector, wherein

in the defrosting operation mode and in the defrosting and cooling operation mode, the passage located upstream of the ejector is brought into a closed state by the ejector shut mechanism.

50. (new) The ejector-type refrigerant cycle device according to Claim 22, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.

51. (new) The ejector-type refrigerant cycle device according to Claim 23, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.

52. (new) The ejector-type refrigerant cycle device according to Claim 24, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.

53. (new) The ejector-type refrigerant cycle device according to Claim 37, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.

54. (new) The ejector-type refrigerant cycle device according to Claim 38, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.

55. (new) The ejector-type refrigerant cycle device according to Claim 42, further comprising:

a vapor-liquid separator that is provided on a refrigerant outflow side of the first evaporator,

wherein the vapor-liquid separator separates refrigerant into vapor and liquid, and stores liquid phase refrigerant and lets vapor phase refrigerant out to a refrigerant suction side of the compressor.